

REMARKS

Claims 1-6, 9-20 and 23 are pending in the application.

Claims 1-6, 9-20 and 23 have been rejected.

Claims 29, 30, 31, 32 and 33 have been added.

Rejection of Claims under 35 U.S.C. §103(a)

Claims 1-6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Pauwels (USPPN 2001/0030974 A1) hereinafter referred to as (“Pauwels”) in view of Johnson (USPN 6,834,315) hereinafter referred to as (“Johnson”). Applicants respectfully traverse this rejection.

The Applicants respectfully submit that no one having ordinary skill in the art would be motivated to combine Johnson and Pauwels as described by the Office Action because the combination would render Johnson unsatisfactory for its intended use. Section 2143.02 of the MPEP makes clear that a proposed modification cannot render the prior art unsatisfactory for its intended purpose:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The arguments made by the Office Action relating to Johnson refer to insuring “that I/O requests associated with a higher priority...receive preference in processing at the device driver over I/O requests associated with a lower priority...” Office Action, page 3. The method disclosed by Johnson to preferentially send low priority requests includes use of a counter. Using such a counter in Pauwels would render the inventions of Pauwels unsatisfactory for their intended purpose. Specifically, Pauwels is replete with teachings that preference between queues of various priority is determined by using state machines. The use of Johnson’s counters would prevent preferential sequential provision of access to a plurality of queues based on a hierarchical evaluation of their different priorities, thereby defeating an explicit object of Pauwel’s invention. *See e.g.*, Pauwels, Abstract.

Thus, the use of Johnson's counters would be counter to the use of Pauwel's state machines because the counters taught by Johnson would not allow for the desired transition between states based on the priority of queues having data to transmit.

Applicants respectfully submit that at least for the reasons above, independent claim 1 is allowable. Applicants further submit that dependent claims 2-6 are similarly allowable at least by virtue of their depending from allowable base claims. Therefore, Applicants respectfully request withdrawal of the rejections of these claims and indication of allowability of same.

Claims 3 and 4

The Office Action (at page 4) cites Pauwels (¶ 50 and ¶ 54) as teaching the following limitations of claims 3 and 4:

stopping said transmission of said first data stream;
transmitting a first switch code; and
transmitting said second data stream;
transmitting a second switch code; and
resuming transmission of said first data stream.

Applicants respectfully disagree and submit that the cited paragraphs do not teach or suggest transmitting a first and second switch code.

Paragraph 51 of Pauwels reads:

Once the processor determines that all of the interrupting higher priority traffic has been switched to output port 5, it resumes switching of the traffic 7-9 from queue 3, as is shown in FIG. 3.

And paragraph 54 of Pauwels reads:

If it is determined that the new start is acceptable, the routing and queueing information for the interrupted cell or packet are pushed onto a memory stack 70, and the routing logic is restarted for the new cell or packet. Upon detection of the end of the interrupting cell or packet, the state machine 20 reverts back to the previous state by retrieving the routing and queueing logic for the previous lower priority cell or packet from the memory stack 70, and resumes its processing.

Paragraph 51 (in conjunction with Fig. 3) simply discloses that once queue 1 (a higher priority queue) is completely empty, queue 3 resumes transmission. Paragraph 54 simply discloses storing routing and queueing logic on a memory stack. Applicants are unable to find any suggestion of a switch code in the cited paragraphs, much less

transmitting a first switch code and a second switch code. Therefore, the applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. As noted in MPEP § 2143.03, all claim limitations must be taught or suggested by the prior art.

Applicants respectfully submit that at least for the reasons above, dependent claims 3 and 4 are allowable. Therefore, Applicants respectfully request withdrawal of the rejections of these claims and indication of allowability of same.

Rejection of Claims under 35 U.S.C. §102(b)

Claims 1-6, 9-18, 20 and 23 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ellis et al. (USPN 5,497,371) hereinafter referred to as (“Ellis”) in view of Johnson. Applicants respectfully traverse this rejection. Based on the citation of multiple references, Applicants assume that the rejection of these claims is under 35 U.S.C. §103(a) and not 35 U.S.C. §102(b), and respond accordingly.

The Applicants respectfully submit that no one having ordinary skill in the art would be motivated to combine Johnson and Ellis as described by the Office Action because the combination would render Johnson unsatisfactory for its intended use. Section 2143.02 of the MPEP makes clear that a proposed modification cannot render the prior art unsatisfactory for its intended purpose:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The arguments made by the Office Action relating to Johnson refer to insuring “that I/O requests associated with a higher priority...receive preference in processing at the device driver over I/O requests associated with a lower priority...” Office Action, page 3. The method of Johnson depends upon counting I/O requests. On the other hand, Ellis discloses unlimited fragmentation of packets to allow multiple priority traffic streams to exist on a single link. *See e.g.*, Ellis, Abstract. Allowing unlimited packet fragmentation, as in Ellis, would render the inventions of Johnson unsatisfactory for their intended purpose.

Specifically, Ellis is replete with teachings that lower priority packets may be interrupted as many times as necessary. *See e.g.*, Ellis, col. 4 lines 55-65. Such unlimited packet fragmentation would render the I/O counter of Johnson useless, because while the I/O request counter may reach a threshold, since higher priority data can interrupt at will, the counter fails in its objective of processing I/O requests of lower priority data ahead of those for higher priority data.

Thus, Ellis's method of unlimited packet fragmentation would render Johnson unsuitable for its intended purpose. Accordingly, Applicants respectfully submit that independent claims 1, 13, and 23 are allowable over the cited references and respectfully request withdrawal of the rejections of these claims and indication of allowability of same.

Applicants respectfully submit that dependent claims 2-6, 9-12, and 14-20 are similarly allowable at least by virtue of their depending from allowable base claims. Therefore, Applicants respectfully request withdrawal of the rejections of these claims and indication of allowability of same.

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ellis and Johnson as applied to Claims 1-6, 9-18, 20 and 23 above and further in view of Hebb et al. (USPN 6,463,067) hereinafter referred to as ("Hebb"). Applicants respectfully traverse this rejection. As discussed above, the suggested combination of Ellis and Johnson is impermissible. Since further combination with Hebb fails to cure that deficiency, Applicants respectfully submit that dependent claim 19 is allowable and respectfully request withdrawal of the rejections of this claim and indication of allowability of same.

Applicants have added claims 29-33. The claims are fully supported by Applicants' Specification and do not constitute new matter.

Claim 29 contains the following limitations:

- transmitting a first data stream to a switch fabric, said first data stream having a first priority;
- at any time during said transmission, interrupting said transmission of said first data stream;
- transmitting a first switch code;
- transmitting a second data stream to said switch fabric, said second data stream having a second priority;
- transmitting a second switch code; and
- resuming transmission of said first data stream, wherein

- the first switch code comprises at least one of an indication that the data following the first switch code has a different priority than the data preceding the first switch code and that the data preceding the first switch code is the last data of a frame, and
- the second switch code comprises at least one of an indication that the data following the second switch code has a different priority than the data preceding the second switch code and that the data preceding the second switch code is the last data of a frame.

Support for the limitation that “the first switch code comprises at least one of an indication that the data following the first switch code has a different priority than the data preceding the first switch code and that the data preceding the first switch code is the last data of a frame” is found at least in Applicants’ Specification at ¶ 0023, as is support for the limitation that “the second switch code comprises at least one of an indication that the data following the second switch code has a different priority than the data preceding the second switch code and that the data preceding the second switch code is the last data of a frame”. Applicants respectfully submit that the insertion of switch codes which may be frame delimiters, indications of priority switches, or combinations of the two is not taught by the cited references.

Claim 30 contains the following limitations:

- a first buffer configured to store data of a first data stream prior to transmission to a switching fabric, said data of said first data stream having a first priority, wherein said switching fabric is comprised of a first crossbar, wherein said first crossbar is configured to receive said first data stream;
- a second buffer configured to store data of a second data stream prior to transmission to said switching fabric, said data of said second data stream having a second priority, wherein the switching fabric is comprised of a second crossbar, wherein said second crossbar is configured to receive said second data stream; and
- a priority switch circuit coupled to said first buffer and said second buffer, wherein said priority switch circuit is configured to, upon detection of data of said second data stream, interrupt a transmission of data of said first data stream from the first buffer at any time during said transmission and transmit data of said second data stream from the second buffer.

Support for the limitations which disclose a first and second crossbar configured to receive high and low priority data, respectively, is found at least in Applicants’ Specification at ¶ 0029 and Fig. 5. Applicants respectfully submit that the cited references fail to teach or suggest inclusion of a dual, priority specific crossbar configuration.

Claim 31 contains the following limitations:

said priority switch circuit is further configured to interrupt said transmission of said second data stream from the second buffer to resume transmission of said first data stream from the first buffer.

Support for these limitations is found at least in Applicants' Specification at ¶ 0025. Applicants respectfully submit that the cited references fail to teach or suggest the above claim limitations.

Claim 32 contains the following limitations:

the first and second FIFOs are implemented as circular FIFOs,
the first and second FIFOs are implemented in a single memory, and
the boundary between the first and second FIFOs is set by a pointer

Support for these limitations is found at least in Applicants' Specification at ¶ 0018 and Fig. 3B. Applicants respectfully submit that the cited references fail to teach or suggest the above claim limitations.

Claim 33 contains the following limitations:

stopping transmission of a frame of said second data stream after detection of a start of said frame and prior to detection of an end of said frame.

Support for these limitations is found at least in Applicants' Specification at ¶ 0023. Applicants respectfully submit that the cited references fail to teach or suggest the above claim limitations.

CONCLUSION

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephone interview, the Examiner is invited to telephone the undersigned at 512-439-5092.

If any extensions of time under 37 C.F.R. § 1.136(a) are required in order for this submission to be considered timely, Applicant hereby petitions for such extensions. Applicant also hereby authorizes that any fees due for such extensions or any other fee associated with this submission, as specified in 37 C.F.R. § 1.16 or § 1.17, be charged to deposit account 502306.

Respectfully submitted,



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